Figure 1

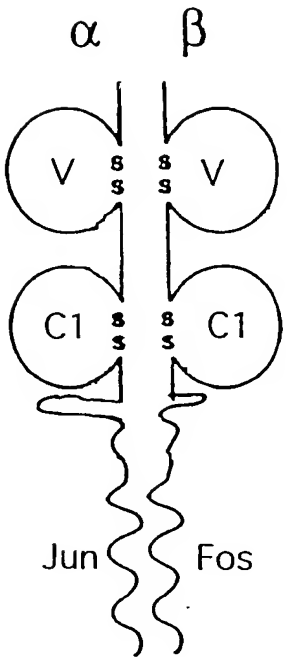

Figure 2

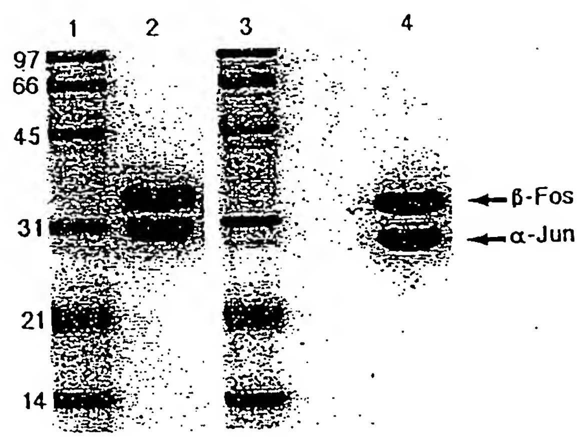

Figure 3

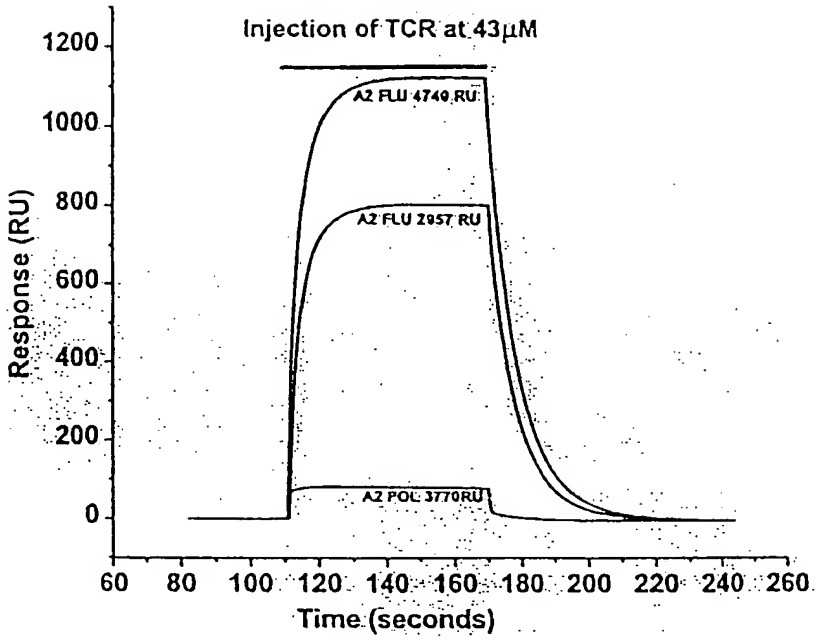
Injection of TCR at 43µM
A2 FLU 4740 RU
A2 FLU 2957 RU
A2 POL 3770RU
Response (RU)
1200
1000
800
600
400
200
0
60
80
100
120
140
160
180
200
220
240
260
Time (seconds)

Figure 4

A

Poly-C 'anchor primer' :

Xho I
5'- TAA ATA CTC GAG GGG CGC CCC CCC CCC CCC CCC -3'

B

TCR α chain constant region specific primer:

Xma I
5'- ATA TAA CCC GGG GAA CCA GAT CCC CAC AGG AAC TTT CTG GGC TGG GGA -3'

C

TCR β chain constant region specific primer:

Xma I
5'- ATA TAA CCC GGG GAA CCA GAT CCC CAC AGT CTG CTC TAC CCC AGG CC -3'

Figure 5

A

c-jun 5′ primer:

Xma I

5′- CATACACCCGGGGGTAGAATCGCCCGGCTGGAG -3′

B

c-jun 3′ primer:

Xho I

5′ - GTGTGTGCTCGAGGATCCTAGTAGTTCATGACTTTCTGTTTAAGCTGTGC -3′

Bam HI

C

c-fos 5′ primer:

Xma I

5′ -CATACACCCGGGGGTCTGACTGATACACTCCAAGCGGAG -3′

D

c-fos 3′ primer:

Xho I

5′- TGTGTGCTCGAGGATCCTAGTAAGCTGCCAGGATGAACTCTAGTTTTTC -3′

Bam HI

Figure 6.

A

```
     R   I   A   R   L   E   E   K   V   K   T   L   K   A   Q   N   S   E   L   A
5'-  AGA ATC GCC CGG CTG GAG GAA AAA GTG AAA ACC TTG AAA GCT CAG AAC TCG GAG CTG GCG

     S   T   A   N   M   L   R   E   Q   V   A   Q   L   K   Q   K   V   M   N   Y
     TCC ACG GCC AAC ATG CTC AGG GAA CAG GTG GCA CAG CTT AAA CAG AAA GTC ATG AAC TAC -3'
```

C-jun leucine zipper DNA and amino acid (one-letter code) sequences as fused to TCR alfa chains.

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B

```
     L   T   D   T   L   Q   A   E   T   D   Q   L   E   D   E   K   S   A   L   Q
5'-  CTG ACT GAT ACA CTC CAA GCG GAG ACA GAC CAA CTA GAA GAT GAG AAG TCT GCT TTG CAG

     T   E   I   A   N   L   L   K   E   K   E   K   L   E   F   I   L   A   A   Y
     ACC GAG ATT GCC AAC CTG CTG AAG GAG AAG GAA AAA CTA GAG TTC ATC CTG GCA GCT TAC -3'
```

C-fos leucine zipper DNA and amino acid (one-letter code) sequences as fused to TCR beta chains.

Figure 7

A

Mutation of cysteine to serine, forwards (sense) primer, indicating amino acid sequence and the mutation:

```
                    C
                    ↓
     D   S   R   Y   S   L   S   S
5'- GAC TCC AGA TAC AGC CTG AGC AGC CG -3'
```

B

Mutation of cysteine to serine, backwards (nonsense) primer:

```
5'- CG GCT GCT CAG GCT GTA TCT GGA GTC -3'
```

C

Mutation of cysteine to alanine, forwards (sense) primer, indicating amino acid sequence and the mutation:

```
                    C
                    ↓
     D   S   R   Y   A   L   S   S
5'- GAC TCC AGA TAC GCT CTG AGC AGC CG -3'
```

D

Mutation of cysteine to alanine, backwards (nonsense) primer:

```
5'- CG GCT GCT CAG AGC GTA TCT GGA GTC -3'
```

Figure 8

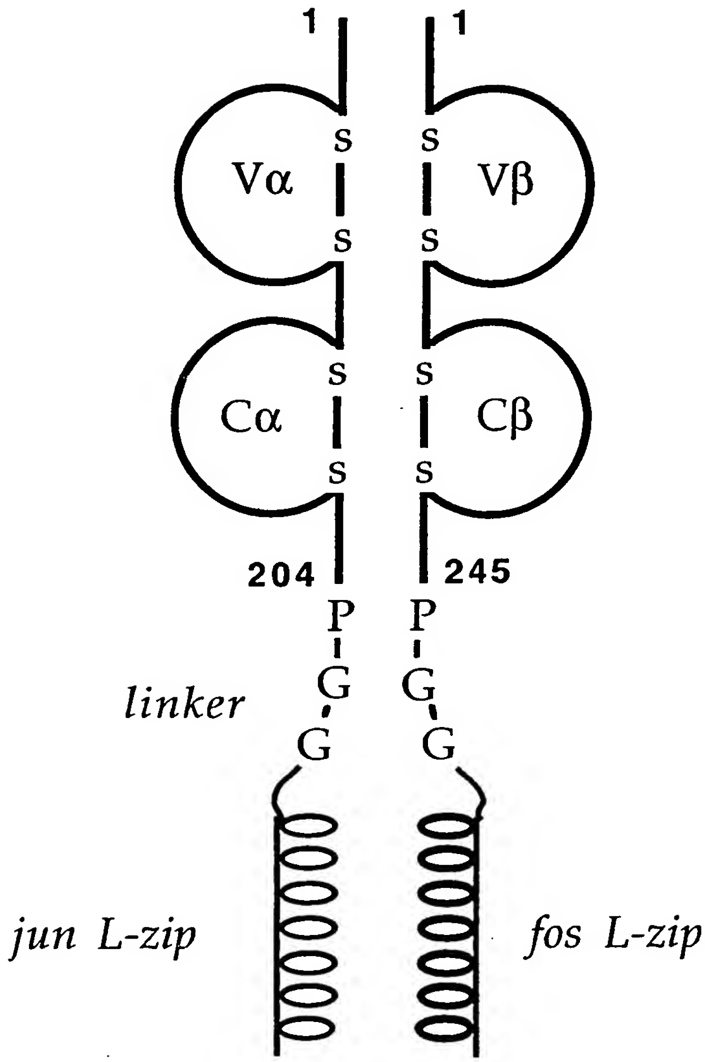


Figure 9

A

5′ PCR primer for the human Vα10.2 chain of the JM22 Influenza Matrix peptide-HLA-A0201 restricted TCR:

```
                    M   Q   L   L   E   Q   S   P   Q   F   L
5′- gctctagacat ATG CAa CTa CTa GAa CAa AGt CCT CAG TTT CTA
            Nde I

 S   I   Q   E
AGC ATC CAA GAG G -3′
```

B

5′ PCR primer for the human Vβ17 chain of the JM22 Influenza Matrix peptide-HLA-A0201 restricted TCR:

```
                    M   V   D   G   G   I   T   Q   S
5′- gctctagacat ATG GTG GAT GGT GGA ATC ACT CAG TCC C -3′
            Nde I
```

C

5′ PCR primer for the mouse Vα4 chain of the Influenza nucleoprotein peptide-H2-D^b restricted TCR:

```
                    M   D   S   V   T   Q   M   Q   G   Q   V
5′- gctctagacat ATG GAt TCt GTt ACt CAa ATG CAa GGt CAa GTG
            Nde I

 T   L   S   S
ACC CTC TCA TCA G -3′
```

Figure 9 (continued)

D

5′ PCR primer for the mouse Vβ11 chain of the Influenza nucleoprotein peptide-H2-D^b restricted TCR:

```
                    M   E   P   T   N   A   G   V   I   Q
5′- gctctagacat ATG GAa CCa ACa AAt GCt GGt GTt ATC CAA

 T   P   R   H
ACA CCT AGG CAC -3′
```

E

5′ PCR primer for the human Vα23 chain of the 003 HIV-1 Gag peptide-HLA-A0201 restricted TCR:

```
                  M   K   Q   E   V   T   Q   I
5′- ggaattccat atg AAA CAa GAG GTt ACa CAa ATT CC -3′
          Nde I
```

F

5′ PCR primer for the human Vβ5.1 chain of the 003 HIV-1 Gag peptide-HLA-A0201 restricted TCR:

```
                  M   K   A   G   V   T   Q   T
5′- ggaattccat atg AAa GCT GGA GTt ACT CAA ACT CC -3′
```

Figure 9 (continued)

G

5′ PCR primer for the human Vα2.3 chain of the HTLV-1 Tax peptide-HLA-A0201 restricted A6 TCR:

```
                    M   Q   K   E   V   E   Q   K
5′ -cccccc cat ATG CAG AAG GAA GTG GAG CAG AAC -3′
           Nde I
```

H

5′ PCR primer for the human Vβ12.3 chain of the HTLV-1 Tax peptide-HLA-A0201 restricted A6 TCR:

```
                    M   K   A   G   V   T   Q   T
5′- cccccc cat ATG AAC GCT GGT GTC ACT CAG ACC -3′
           Nde I
```

I

5′ PCR primer for the human Vα17.2 chain of the HTLV-1 Tax peptide-HLA-A0201 restricted B7 TCR:

```
                    M   Q   Q   K   N   D   D   Q   Q   V
5′ -cccccc cat ATG CAA CAa AAa AAT GAT GAC CAG CAA GTT
           Nde I

 K   Q   N
AAG CAA AAT -3′
```

Figure 9 (continued)

J

5′ PCR primer for the human Vβ12.3 chain of the HTLV-1 Tax peptide-HLA-A0201 restricted B7 TCR:

```
                    M   N   A   G   V   T   Q   T   P   K   F
5′ -cccccc cat ATG AAC GCT GGT GTC ACT CAG ACC CCA AAA TTC
           Nde I

 Q
CAG -3′
```

K

3′ PCR primer for human Cα chains, generally applicable:

```
5′- cataca ccc ggg GGA ACT TTC TGG GCT GGG GAA GAA GG -3′
           Xma I
```

L

3′ PCR primer for human Cβ chains, generally applicable:

```
5′- cataca ccc ggg GTC TGC TCT ACC CCA GGC CTC -3′
           Xma I
```

Figure 10

TCR alfa>

M Q L L E Q S P Q F L S I Q E G E N L T
ATGCAaCTaCTaGAaCAaAGtCCTCAGTTTCTAAGCATCCAAGAGGGAGAAAATCTCACT

V Y C N S S S V F S S L Q W Y R Q E P G
GTGTACTGCAACTCCTCAAGTGTTTTTTCCAGCTTACAATGGTACAGACAGGAGCCTGGG

E G P V L L V T V V T G G E V K K L K R
GAAGGTCCTGTCCTCCTGGTGACAGTAGTTACGGGTGGAGAAGTGAAGAAGCTGAAGAGA

L T F Q F G D A R K D S S L H I T A A Q
CTAACCTTTCAGTTTGGTGATGCAAGAAAGGACAGTTCTCTCCACATCACTGCGGCCCAG

P G D T G L Y L C A G A G S Q G N L I F
CCTGGTGATACAGGCCTCTACCTCTGTGCAGGAGCGGGAAGCCAAGGAAATCTCATCTTT

G K G T K L S V K P N I Q N P D P A V Y
GGAAAAGGCACTAAACTCTCTGTTAAACCAAATATCCAGAACCCTGACCCTGCCGTGTAC

Q L R D S K S S D K S V C L F T D F D S
CAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGCCTATTCACCGATTTTGATTCT

Q T N V S Q S K D S D V Y I T D K T V L
CAAACAAATGTGTCACAAAGTAAGGATTCTGATGTGTATATCACAGACAAAACTGTGCTA

D M R S M D F K S N S A V A W S N K S D
GACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTGGCCTGGAGCAACAAATCTGAC

F A C A N A F N N S I I P E D T F F P S
TTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTCCCCAGC

<TCR alfa linker c-jun>

P E S S P G G R I A R L E E K V K T L K
CCAGAAAGTTCCcccgggGGTAGAATCGCCCGGCTGGAGGAAAAAGTGAAAACCTTGAAA

A Q N S E L A S T A N M L R E Q V A Q L
GCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCACAGCTT

K Q K V M N Y *
AAACAGAAAGTCATGAACTACTAG

Figure 11

TCR beta>

M V D G G I T Q S P K Y L F R K E G Q N
ATGGTGGATGGTGGAATCACTCAGTCCCCAAAGTACCTGTTCAGAAAGGAAGGACAGAAT

V T L S C E Q N L N H D A M Y W Y R Q D
GTGACCCTGAGTTGTGAACAGAATTTGAACCACGATGCCATGTACTGGTACCGACAGGAC

P G Q G L R L I Y Y S Q I V N D F Q K G
CCAGGGCAAGGGCTGAGATTGATCTACTACTCACAGATAGTAAATGACTTTCAGAAAGGA

D I A E G Y S V S R E K K E S F P L T V
GATATAGCTGAAGGGTACAGCGTCTCTCGGGAGAAGAAGGAATCCTTTCCTCTCACTGTG

T S A Q K N P T A F Y L C A S S S R S Sq
ACATCGGCCCAAAAGAACCCGACAGCTTTCTATCTCTGTGCCAGTAGTTCGAGGAGCTCC

Y E Q Y F G P G T R L T V T E D L K N V
TACGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAAAACGTT

F P P E V A V F E P S E A E I S H T Q K
TTCCCACCCGAGGTCGCTGTGTTTGAACCATCAGAAGCAGAGATCTCCCACACCCAAAAG

A T L V C L A T G F Y P D H V E L S W W
GCCACACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGCTGGTGG

V N G K E V H S G V S T D P Q P L K E Q
GTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCTCAAGGAGCAG

P A L N D S R Y C L S S R L R V S A T F
CCCGCCCTCAATGACTCCAGATACTGCCTGAGCAGCCGCCTGAGGGTCTCGGCCACCTTC

W Q N P R N H F R C Q V Q F Y G L S E N
TGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAGAAT

D E W T Q D R A K P V T Q I V S A E A W
GACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAGGCCTGG

<TCR beta linker c-fos>

G R A D P G G L T D T L Q A E T D Q L E
GGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA

D K K S A L Q T E I A N L L K E K E K L
GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAACTA

E F I L A A Y *
GAGTTCATCCTGGCAGCTTACTAG

Figure 12

TCR alfa>

M N Y S P A L V T V M L F V F G R T H G
ATGAACTATTCTCCAGCTTTAGTGACTGTGATGCTGTTTGTGTTTGGGAGGACCCATGGA

D S V T Q M Q G Q V T L S E D D F L F I
GACTCAGTAACCCAGATGCAAGGTCAAGTGACCCTCTCAGAAGACGACTTCCTATTTATA

N C T Y S T T W Y P T L F W Y V Q Y P G
AACTGTACTTATTCAACCACATGGTACCCGACTCTTTTCTGGTATGTCCAATATCCTGGA

E G P Q L L L K V T T A N N K G I S R G
GAAGGTCCACAGCTCCTTTTGAAAGTCACAACAGCCAACAACAAGGGAATCAGCAGAGGT

F E A T Y D K G T T S F H L Q K A S V Q
TTTGAAGCTACATATGATAAAGGAACAACGTCCTTCCACTTGCAGAAAGCCTCAGTGCAG

E S D S A V Y Y C V L G D R Q G G R A L
GAGTCAGACTCTGCTGTGTACTACTGTGTGCTGGGTGATCGACAGGGAGGCAGAGCTCTG

I F G T G T T V S V S P N I Q N P E P A
ATATTTGGAACAGGAACCACGGTATCAGTCAGCCCCAACATCCAGAACCCAGAACCTGCT

V Y Q L K D P R S Q D S T L C L F T D F
GTGTACCAGTTAAAAGATCCTCGGTCTCAGGACAGCACCCTCTGCCTGTTCACCGACTTT

D S Q I N V P K T M E S G T F I T D K T
GACTCCCAAATCAATGTGCCGAAAACCATGGAATCTGGAACGTTCATCACTGACAAAACT

V L D M K A M D S K S N G A I A W S N Q
GTGCTGGACATGAAAGCTATGGATTCCAAGAGCAATGGGGCCATTGCCTGGAGCAACCAG

T S F T C Q D I S K E T N A T Y P S S D
ACAAGCTTCACCTGCCAAGATATCTCCAAAGAGACCAACGCCACCTACCCCAGTTCAGAC

<TCR alfa <u>linker</u> c-jun>

V P G G R I A R L E E K V K T L K A Q N
GTTcccgggGGTAGAATCGCCCGGCTGGAGGAAAAAGTGAAAACCTTGAAAGCTCAGAAC

S E L A S T A N M L R E Q V A Q L K Q K
TCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCACAGCTTAAACAGAAA

V M N Y *
GTCATGAACTACTAG

Figure 13

TCR beta>

M K A G V T Q T P R Y L I K T R G Q Q V
ATGAAAGCTGGAGTTACTCAAACTCCAAGATATCTGATCAAAACGAGAGGACAGCAAGTG

T L S C S P I S G H R S V S W Y Q Q T P
ACACTGAGCTGCTCCCCTATCTCTGGGCATAGGAGTGTATCCTGGTACCAACAGACCCCA

G Q G L Q F L F E Y F S E T Q R N K G N
GGACAGGGCCTTCAGTTCCTCTTTGAATACTTCAGTGAGACACAGAGAAACAAAGGAAAC

F P G R F S G R Q F S N S R S E M N V S
TTCCCTGGTCGATTCTCAGGGCGCCAGTTCTCTAACTCTCGCTCTGAGATGAATGTGAGC

T L E L G D S A L Y L C A S S F D S G N
ACCTTGGAGCTGGGGGACTCGGCCCTTTATCTTTGCGCCAGCAGCTTCGACAGCGGGAAT

S P L H F G N G T R L T V T E D L N K V
TCACCCCTCCACTTTGGGAACGGGACCAGGCTCACTGTGACAGAGGACCTGAACAAGGTG

F P P E V A V F E P S E A E I S H T Q K
TTCCCACCCGAGGTCGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCCACACCCAAAAG

A T L V C L A T G F F P D H V E L S W W
GCCACACTGGTGTGCCTGGCCACAGGCTTCTTCCCTGACCACGTGGAGCTGAGCTGGTGG

V N G K E V H S G V S Q D P Q P L K E Q
GTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCCAGGACCCGCAGCCCCTCAAGGAGCAG

P A L N D S R Y S L S S R L R V S A T F
CCCGCCCTCAATGACTCCAGATACAGCCTGAGCAGCCGCCTGAGGGTCTCGGCCACCTTC

W Q N P R N H F R C Q V Q F Y G L S E N
TGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAGAAT

D E W T Q D R A K P V T Q I V S A E A W
GACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAGGCCTGG

<TCR beta linker c-fos>

G R A D P G G L T D T L Q A E T D Q L E
GGTAGAGCAGACCCCGGGGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA

D K K S A L Q T E I A N L L K E K E K L
GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAACTA

E F I L A A Y *
GAGTTCATCCTGGCAGCTTACTAG

Figure 14

TCR alfa>

M K Q E V T Q I P A A L S V P E G E N L
ATGAAACAAGAAGTTACACAGATTCCTGCAGCTCTGAGTGTCCCAGAAGGAGAAAACTTG

V L N C S F T D S A I Y N L Q W F R Q D
GTTCTCAACTGCAGTTTCACTGATAGCGCTATTTACAACCTCCAGTGGTTTAGGCAGGAC

P G K G L T S L L L I Q S S Q R E Q T S
CCTGGGAAAGGTCTCACATCTCTGTTGCTTATTCAGTCAAGTCAGAGAGAGCAAACAAGT

G R L N A S L D K S S G R S T L Y I A A
GGAAGACTTAATGCCTCGCTGGATAAATCATCAGGACGTAGTACTTTATACATTGCAGCT

S Q P G D S A T Y L C A V T N F N K F Y
TCTCAGCCTGGTGACTCAGCCACCTACCTCTGTGCTGTGACCAACTTCAACAAATTTTAC

F G S G T K L N V K P N I Q N P D P A V
TTTGGATCTGGGACCAAACTCAATGTAAAACCAAATATCCAGAACCCTGACCCTGCCGTG

Y Q L R D S K S S D K S V C L F T D F D
TACCAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGCCTATTCACCGATTTTGAT

S Q T N V S Q S K D S D V Y I T D K T V
TCTCAAACAAATGTGTCACAAAGTAAGGATTCTGATGTGTATATCACAGACAAAACTGTG

L D M R S M D F K S N S A V A W S N K S
CTAGACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTGGCCTGGAGCAACAAATCT

D F A C A N A F N N S I I P E D T F F P
GACTTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTCCCC

<TCR alfa linker c-jun>
S P E S S P G G R I A R L E E K V K T L
AGCCCAGAAAGTTCCcccgggGGTAGAATCGCCCGGCTGGAGGAAAAAGTGAAAACCTTG

K A Q N S E L A S T A N M L R E Q V A Q
AAAGCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCACAG

L K Q K V M N Y *
CTTAAACAGAAAGTCATGAACTACTAG

Figure 15

TCR beta>

M K A G V T Q T P R Y L I K T R G Q Q V
ATGAAAGCTGGAGTTACTCAAACTCCAAGATATCTGATCAAAACGAGAGGACAGCAAGTG

T L S C S P I S G H R S V S W Y Q Q T P
ACACTGAGCTGCTCCCCTATCTCTGGGCATAGGAGTGTATCCTGGTACCAACAGACCCCA

G Q G L Q F L F E Y F S E T Q R N K G N
GGACAGGGCCTTCAGTTCCTCTTTGAATACTTCAGTGAGACACAGAGAAACAAAGGAAAC

F P G R F S G R Q F S N S R S E M N V S
TTCCCTGGTCGATTCTCAGGGCGCCAGTTCTCTAACTCTCGCTCTGAGATGAATGTGAGC

T L E L G D S A L Y L C A S S F D S G N
ACCTTGGAGCTGGGGGACTCGGCCCTTTATCTTTGCGCCAGCAGCTTCGACAGCGGGAAT

S P L H F G N G T R L T V T E D L N K V
TCACCCCTCCACTTTGGGAACGGGACCAGGCTCACTGTGACAGAGGACCTGAACAAGGTG

F P P E V A V F E P S E A E I S H T Q K
TTCCCACCCGAGGTCGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCCACACCCAAAAG

A T L V C L A T G F F P D H V E L S W W
GCCACACTGGTGTGCCTGGCCACAGGCTTCTTCCCTGACCACGTGGAGCTGAGCTGGTGG

V N G K E V H S G V S Q D P Q P L K E Q
GTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCCAGGACCCGCAGCCCCTCAAGGAGCAG

P A L N D S R Y S L S S R L R V S A T F
CCCGCCCTCAATGACTCCAGATACAGCCTGAGCAGCCGCCTGAGGGTCTCGGCCACCTTC

W Q N P R N H F R C Q V Q F Y G L S E N
TGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAGAAT

D E W T Q D R A K P V T Q I V S A E A W
GACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAGGCCTGG

<TCR beta linker c-fos>

G R A D P G G L T D T L Q A E T D Q L E
GGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA

D K K S A L Q T E I A N L L K E K E K L
GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAACTA

E F I L A A Y *
GAGTTCATCCTGGCAGCTTACTAG

Figure 16

TCR alfa>

M Q K E V E Q N S G P L S V P E G A I A
atgCAGAAGGAAGTGGAGCAGAACTCTGGACCCCTCAGTGTTCCAGAGGGAGCCATTGCC

S L N C T Y S D R G S Q S F F W Y R Q Y
TCTCTCAACTGCACTTACAGTGACCGAGGTTCCCAGTCCTTCTTCTGGTACAGACAATAT

S G K S P E L I M S I Y S N G D K E D G
TCTGGGAAAAGCCCTGAGTTGATAATGTCCATATACTCCAATGGTGACAAAGAAGATGGA

R F T A Q L N K A S Q Y V S L L I R D S
AGGTTTACAGCACAGCTCAATAAAGCCAGCCAGTATGTTTCTCTGCTCATCAGAGACTCC

Q P S D S A T Y L C A V T T D S W G K L
CAGCCCAGTGATTCAGCCACCTACCTCTGTGCCGTTACAACTGACAGCTGGGGCAAATTG

Q F G A G T Q V V V T P D I Q N P D P A
CAGTTTGGAGCAGGGACCCAGGTTGTGGTCACCCCAGATATCCAGAACCCTGACCCTGCC

V Y Q L R D S K S S D K S V C L F T D F
GTGTACCAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGCCTATTCACCGATTTT

D S Q T N V S Q S K D S D V Y I T D K T
GATTCTCAAACAAATGTGTCACAAAGTAAGGATTCTGATGTGTATATCACAGACAAAACT

V L D M R S M D F K S N S A V A W S N K
GTGCTAGACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTGGCCTGGAGCAACAAA

S D F A C A N A F N N S I I P E D T F F
TCTGACTTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTC

<TCR alfa linker c-jun>

P S P E S S P G G R I A R L E E K V K T
CCCAGCCCAGAAAGTTCCcccgggGGTAGAATCGCCGGCTGGAGGAAAAAGTGAAAACC

L K A Q N S E L A S T A N M L R E Q V A
TTGAAAGCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCA

Q L K Q K V M N Y *
CAGCTTAAACAGAAAGTCATGAACTACTAG

Figure 17

TCR beta>

M N A G V T Q T P K F Q V L K T G Q S M
atgAACGCTGGTGTCACTCAGACCCCAAAATTCCAGGTCCTGAAGACAGGACAGAGCATG

T L Q C A Q D M N H E Y M S W Y R Q D P
ACACTGCAGTGTGCCCAGGATATGAACCATGAATACATGTCCTGGTATCGACAAGACCCA

G M G L R L I H Y S V G A G I T D Q G E
GGCATGGGGCTGAGGCTGATTCATTACTCAGTTGGTGCTGGTATCACTGACCAAGGAGAA

V P N G Y N V S R S T T E D F P L R L L
GTCCCCAATGGCTACAATGTCTCCAGATCAACCACAGAGGATTTCCCGCTCAGGCTGCTG

S A A P S Q T S V Y F C A S R P G L A G
TCGGCTGCTCCCTCCCAGACATCTGTGTACTTCTGTGCCAGCAGGCCCGGACTAGCGGGA

G R P E Q Y F G P G T R L T V T E D L K
GGGCGACCAGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAA

N V F P P E V A V F E P S E A E I S H T
AACGTGTTCCCACCCGAGGTCGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCCACACC

Q K A T L V C L A T G F Y P D H V E L S
CAAAAGGCCACACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGC

W W V N G K E V H S G V S T D P Q P L K
TGGTGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCTCAAG

E Q P A L N D S R Y A L S S R L R V S A
GAGCAGCCCGCCCTCAATGACTCCAGATACgctCTGAGCAGCCGCCTGAGGGTCTCGGCC

T F W Q N P R N H F R C Q V Q F Y G L S
ACCTTCTGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCG

E N D E W T Q D R A K P V T Q I V S A E
GAGAATGACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAG

<TCR beta linker c-fos>

A W G R A D P G G L T D T L Q A E T D Q
GCCTGGGGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAA

Continued .....

Figure 17 (continued)

```
L  E  D  K  K  S  A  L  Q  T  E  I  A  N  L  L  K  E  K  E
CTTGAAGACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAA

                           linker Biotinylation tag>
K  L  E  F  I  L  A  A  Y  G  S  G  G  G  L  N  D  I  F  E
AAACTAGAGTTCATCCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTTGAA

A  Q  K  I  E  W  H  *
GCTCAGAAAATCGAATGGCATTAAGCTT
```

Figure 18

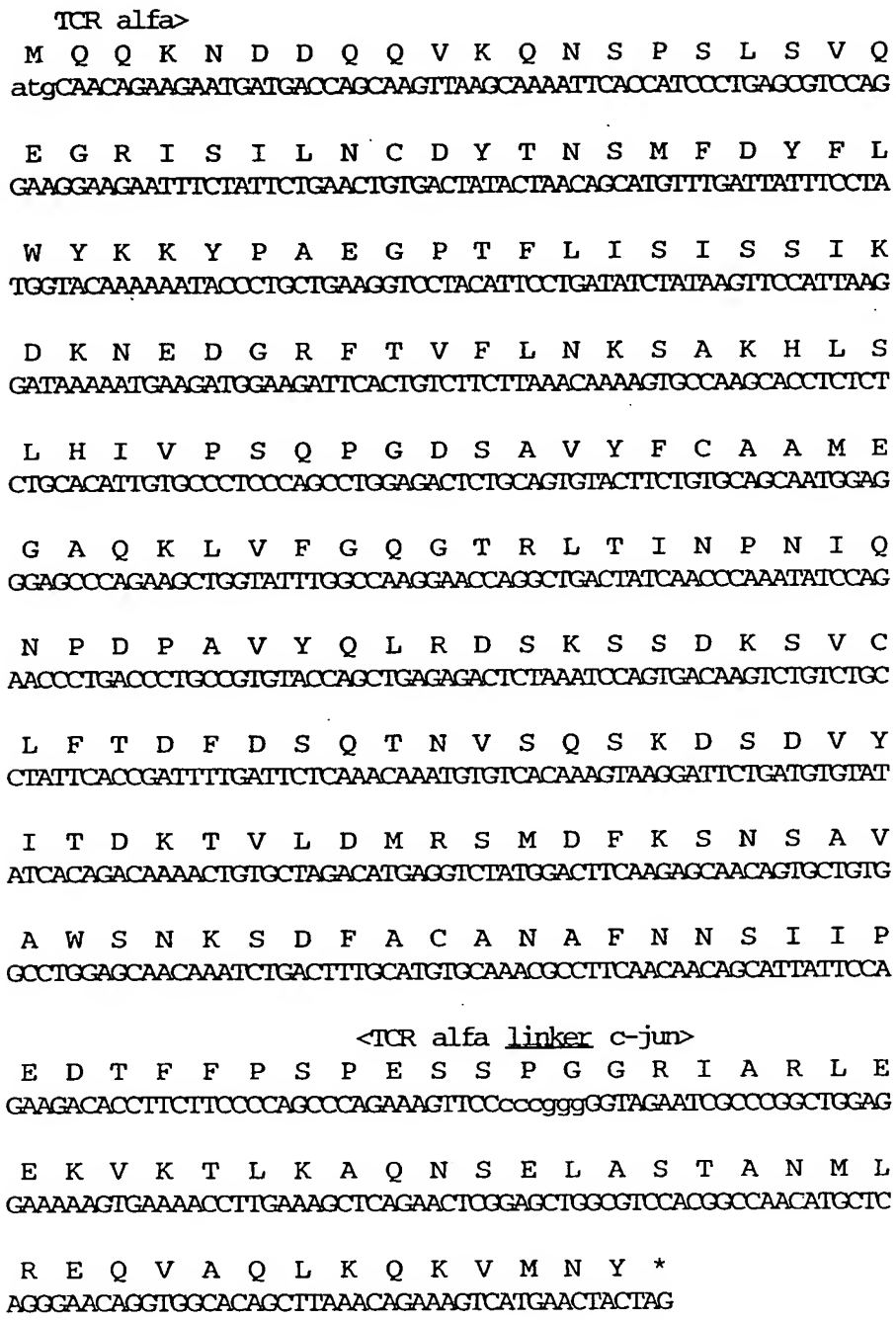

TCR alfa>
M Q Q K N D D Q Q V K Q N S P S L S V Q
atgCAACAGAAGAATGATGACCAGCAAGTTAAGCAAAATTCACCATCCCTGAGCGTCCAG
E G R I S I L N C D Y T N S M F D Y F L
GAAGGAAGAATTTCTATTCTGAACTGTGACTATACTAACAGCATGTTTGATTATTTCCTA
W Y K K Y P A E G P T F L I S I S S I K
TGGTACAAAAAATACCCTGCTGAAGGTCCTACATTCCTGATATCTATAAGTTCCATTAAG
D K N E D G R F T V F L N K S A K H L S
GATAAAAAATGAAGATGGAAGATTCACTGTCTTCTTAAACAAAAGTGCCAAGCACCTCTCT
L H I V P S Q P G D S A V Y F C A A M E
CTGCACATTGTGCCCTCCCAGCCTGGAGACTCTGCAGTGTACTTCTGTGCAGCAATGGAG
G A Q K L V F G Q G T R L T I N P N I Q
GGAGCCCAGAAGCTGGTATTTGGCCAAGGAACCAGGCTGACTATCAACCCAAATATCCAG
N P D P A V Y Q L R D S K S S D K S V C
AACCCTGACCCTGCCGTGTACCAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGC
L F T D F D S Q T N V S Q S K D S D V Y
CTATTCACCGATTTTGATTCTCAAACAAATGTGTCACAAAGTAAGGATTCTGATGTGTAT
I T D K T V L D M R S M D F K S N S A V
ATCACAGACAAAACTGTGCTAGACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTG
A W S N K S D F A C A N A F N N S I I P
GCCTGGAGCAACAAATCTGACTTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCA
<TCR alfa linker c-jun>
E D T F F P S P E S S P G G R I A R L E
GAAGACACCTTCTTCCCCAGCCCAGAAAGTTCCccgggGGTAGAATCGCCCGGCTGGAG
E K V K T L K A Q N S E L A S T A N M L
GAAAAAGTGAAAACCTTGAAAGCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTC
R E Q V A Q L K Q K V M N Y *
AGGGAACAGGTGGCACAGCTTAAACAGAAAGTCATGAACTACTAG

Figure 19

TCR beta>

M N A G V T Q T P K F Q V L K T G Q S M
atgAACGCTGGTGTCACTCAGACCCCAAAATTCCAGGTCCTGAAGACAGGACAGAGCATG

T L Q C A Q D M N H E Y M S W Y R Q D P
ACACTGCAGTGTGCCCAGGATATGAACCATGAATACATGTCCTGGTATCGACAAGACCCA

G M G L R L I H Y S V G A G I T D Q G E
GGCATGGGGCTGAGGCTGATTCATTACTCAGTTGGTGCTGGTATCACTGACCAAGGAGAA

V P N G Y N V S R S T T E D F P L R L L
GTCCCCAATGGCTACAATGTCTCCAGATCAACCACAGAGGATTTCCCGCTCAGGCTGCTG

S A A P S Q T S V Y F C A S S Y P G G G
TCGGCTGCTCCCTCCCAGACATCTGTGTACTTCTGTGCCAGCAGTTACCaGGaGGGGGGG

F Y E Q Y F G P G T R L T V T E D L K N
TTTTACGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAAAAC

V F P P E V A V F E P S E A E I S H T Q
GTGTTCCCACCCGAGGTCGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCCACACCCAA

K A T L V C L A T G F Y P D H V E L S W
AAGGCCACACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGCTGG

W V N G K E V H S G V S T D P Q P L K E
TGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCTCAAGGAG

Q P A L N D S R Y A L S S R L R V S A T
CAGCCCGCCCTCAATGACTCCAGATACgctCTGAGCAGCCGCCTGAGGGTCTCGGCCACC

F W Q D P R N H F R C Q V Q F Y G L S E
TTCTGGCAGgACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAG

N D E W T Q D R A K P V T Q I V S A E A
AATGACGAGTGGACCCAGGATAGGGCCAAACCCGTCACCCAGATCGTCAGCGCCGAGGCC

Continued.....

Figure 19 (continued)

<TCR beta linker c-fos>

W G R A D P G G L T D T L Q A E T D Q L

TGGGGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTT

E D K K S A L Q T E I A N L L K E K E K

GAAGACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAA

linker Biotinylation tag>

L E F I L A A Y G S G G G L N D I F E A

CTAGAGTTCATCCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTTGAAGCT

Q K I E W H *

CAGAAAATCGAATGGCATTAAGCTT

Figure 20

TCR beta>

M N A G V T Q T P K F Q V L K T G Q S M
atgAACGCTGGTGTCACTCAGACCCCAAAATTCCAGGTCCTGAAGACAGGACAGAGCATG

T L Q C A Q D M N H E Y M S W Y R Q D P
ACACTGCAGTGTGCCCAGGATATGAACCATGAATACATGTCCTGGTATCGACAAGACCCA

G M G L R L I H Y S V G A G I T D Q G E
GGCATGGGGCTGAGGCTGATTCATTACTCAGTTGGTGCTGGTATCACTGACCAAGGAGAA

V P N G Y N V S R S T T E D F P L R L L
GTCCCCAATGGCTACAATGTCTCCAGATCAACCACAGAGGATTTCCCGCTCAGGCTGCTG

S A A P S Q T S V Y F C A S R P G L A G
TCGGCTGCTCCCTCCCAGACATCTGTGTACTTCTGTGCCAGCAGGCCGGGACTAGCGGGA

G R P E Q Y F G P G T R L T V T E D L K
GGGCGACCAGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAA

N V F P P E V A V F E P S E A E I S H T
AACGTGTTCCCACCCGAGGTCGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCCACACC

Q K A T L V C L A T G F Y P D H V E L S
CAAAAGGCCACACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGC

W W V N G K E V H S G V S T D P Q P L K
TGGTGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCTCAAG

E Q P A L N D S R Y **A** L S S R L R V S A
GAGCAGCCCGCCCTCAATGACTCCAGATAC<u>gct</u>CTGAGCAGCCGCCTGAGGGTCTCGGCC

T F W Q **D** P R N H F R C Q V Q F Y G L S
ACCTTCTGGCAG**g**ACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCG

E N D E W T Q D R A K P V T Q I V S A E
GAGAATGACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAG

Continued.....

Figure 20 (continued)

<TCR beta <u>linker</u> c-fos>

A W G R A D P G G L T D T L Q A E T D Q
GCCTGGGGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAA

L E D K K S A L Q T E I A N L L K E K E
CTTGAAGACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAA

<u>linker</u> Biotinylation tag>

K L E F I L A A Y G S G G G L N D I F E
AAACTAGAGTTCATCCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTTGAA

A Q K I E W H *
GCTCAGAAAATCGAATGGCATTAAGCTT

Figure 21

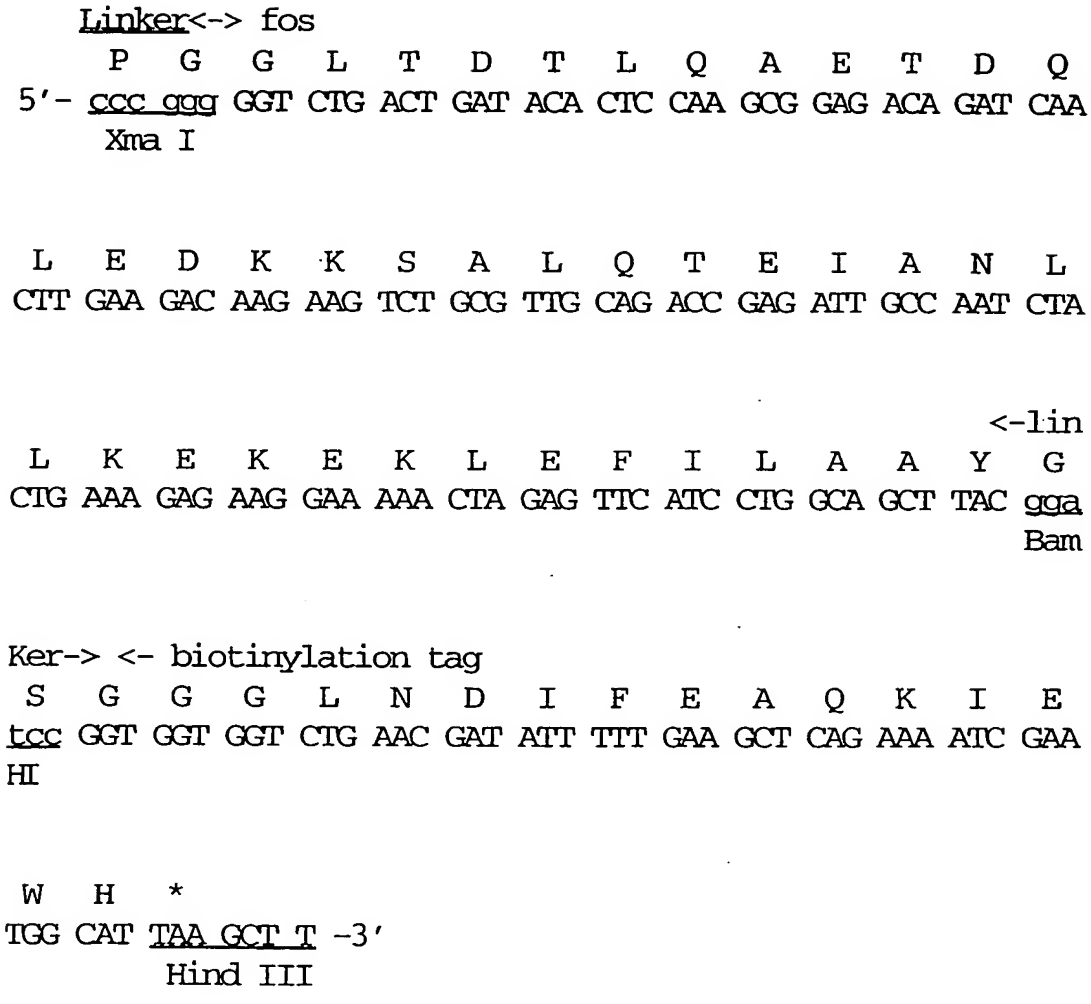

Linker<-> fos
P G G L T D T L Q A E T D Q
5'- ccc ggg GGT CTG ACT GAT ACA CTC CAA GCG GAG ACA GAT CAA
Xma I
L E D K K S A L Q T E I A N L
CTT GAA GAC AAG AAG TCT GCG TTG CAG ACC GAG ATT GCC AAT CTA
<-lin
L K E K E K L E F I L A A Y G
CTG AAA GAG AAG GAA AAA CTA GAG TTC ATC CTG GCA GCT TAC gga
Bam
Ker-> <- biotinylation tag
S G G G L N D I F E A Q K I E
tcc GGT GGT GGT CTG AAC GAT ATT TTT GAA GCT CAG AAA ATC GAA
HI
W H *
TGG CAT TAA GCT T -3'
Hind III

Figure 22

A

Reverse primer:

5'-ACACAC GGA TCC GTA AGC TGC GAC GAT GAA CTC GAT TTT CTT-3'

Bam HI

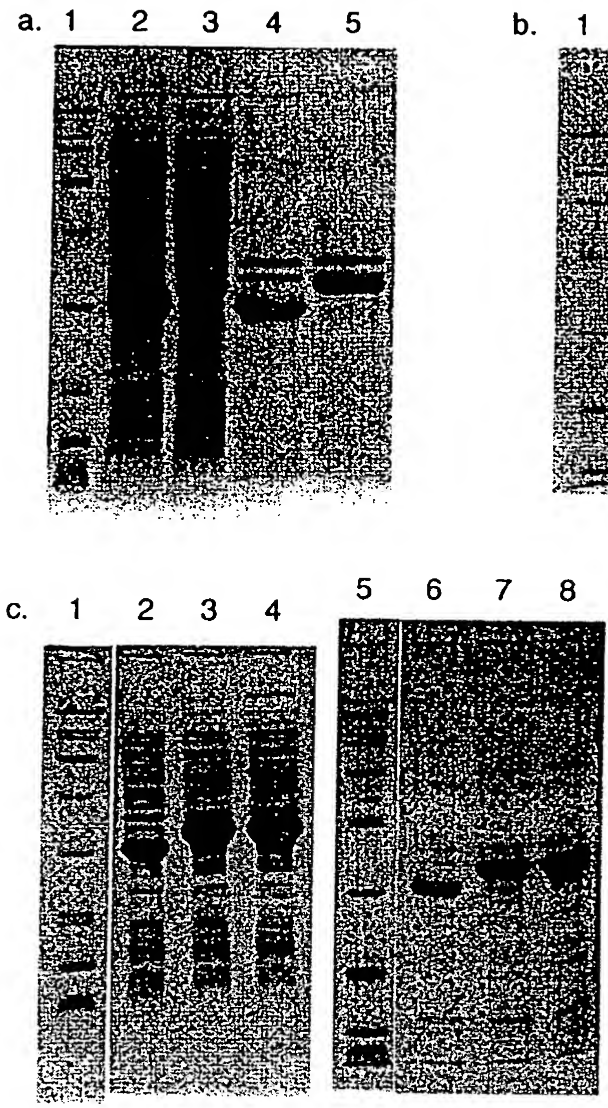


Figure 23

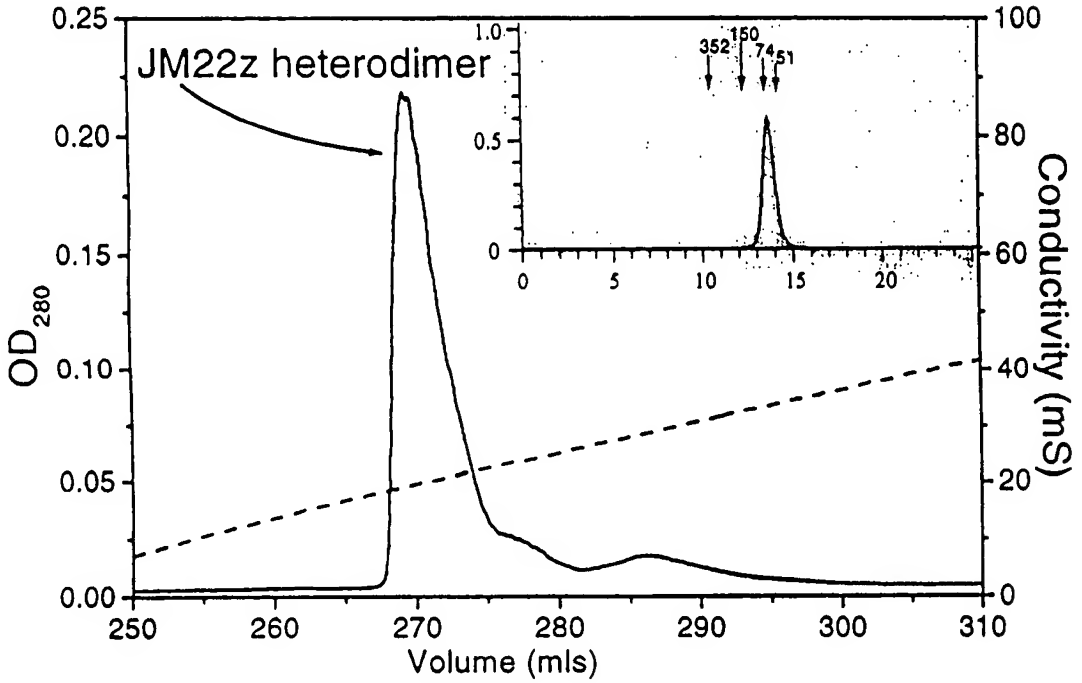


Figure 24.

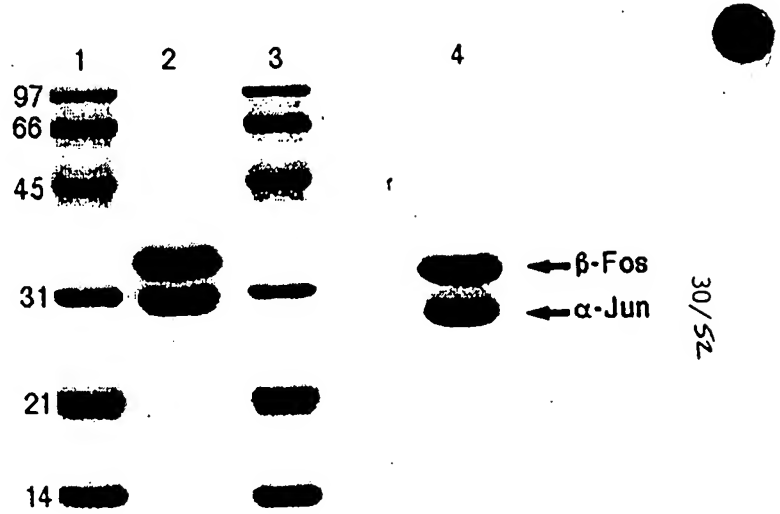


Figure 25.

Figure 26ai

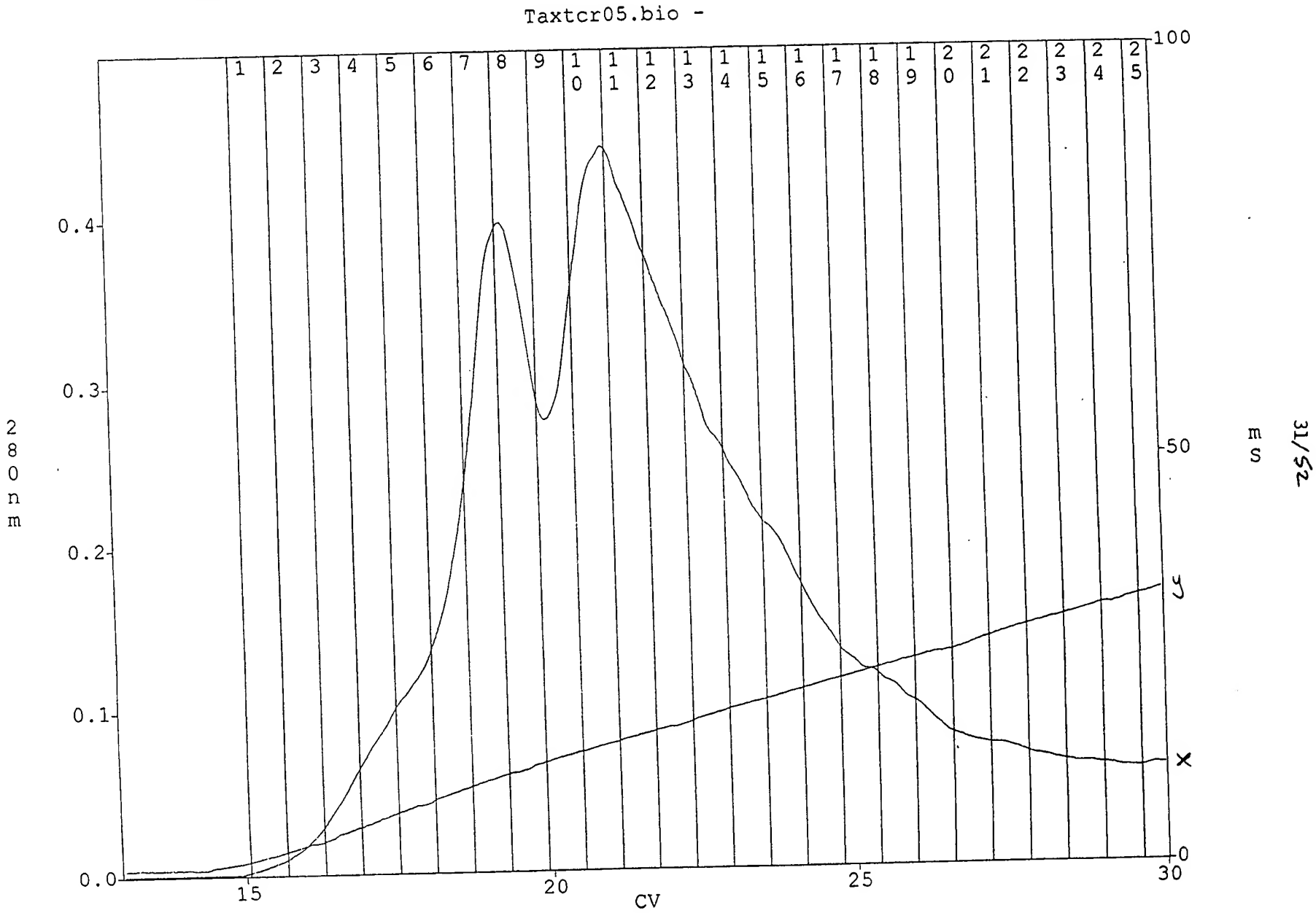
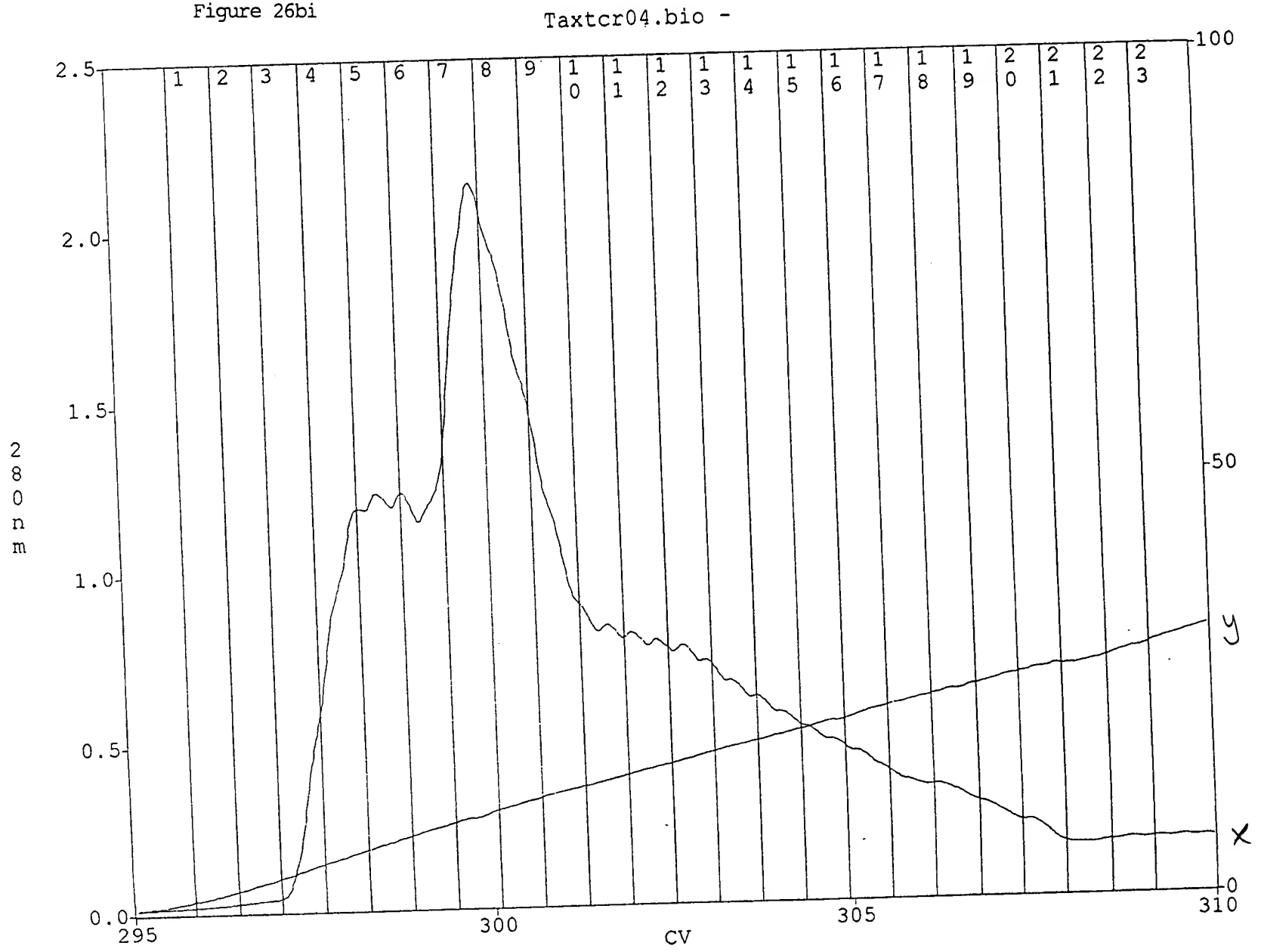


Figure 26bi



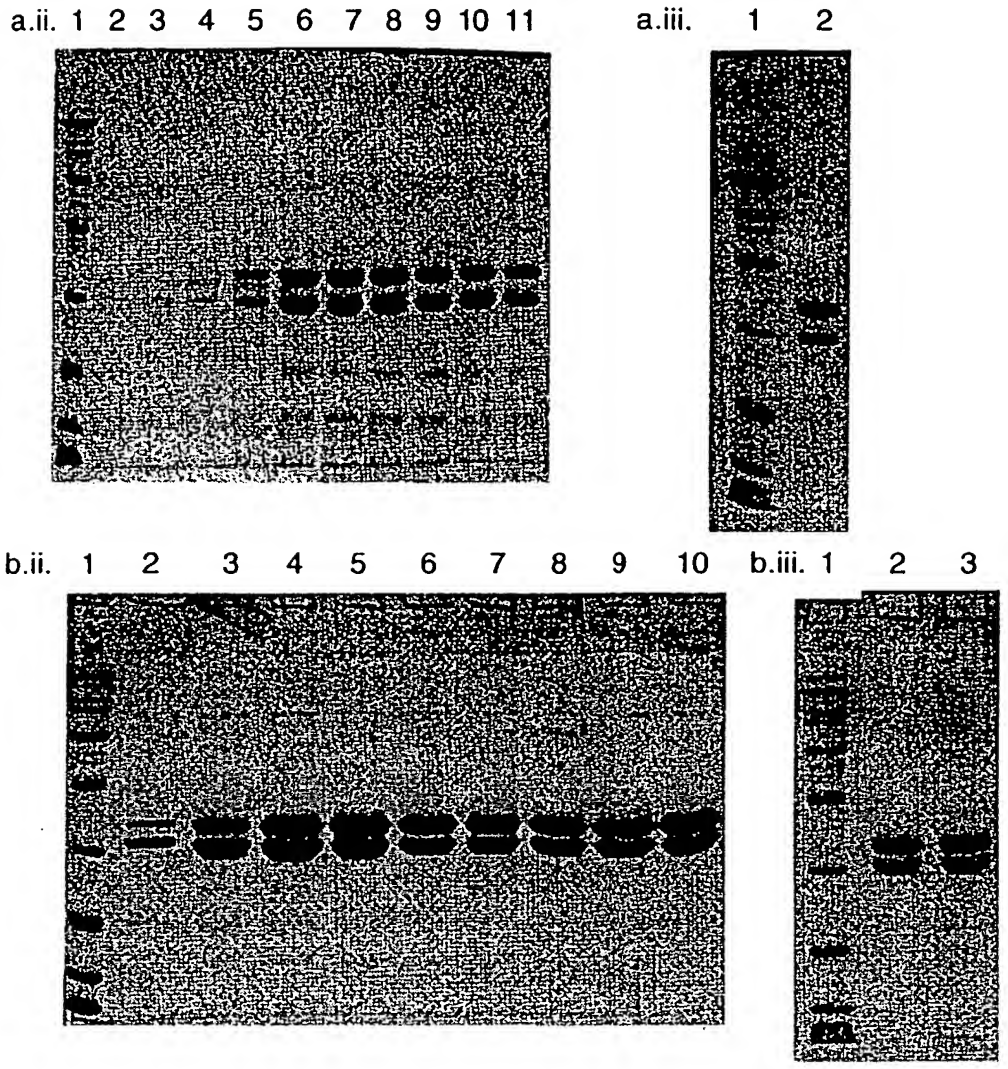


Figure 26

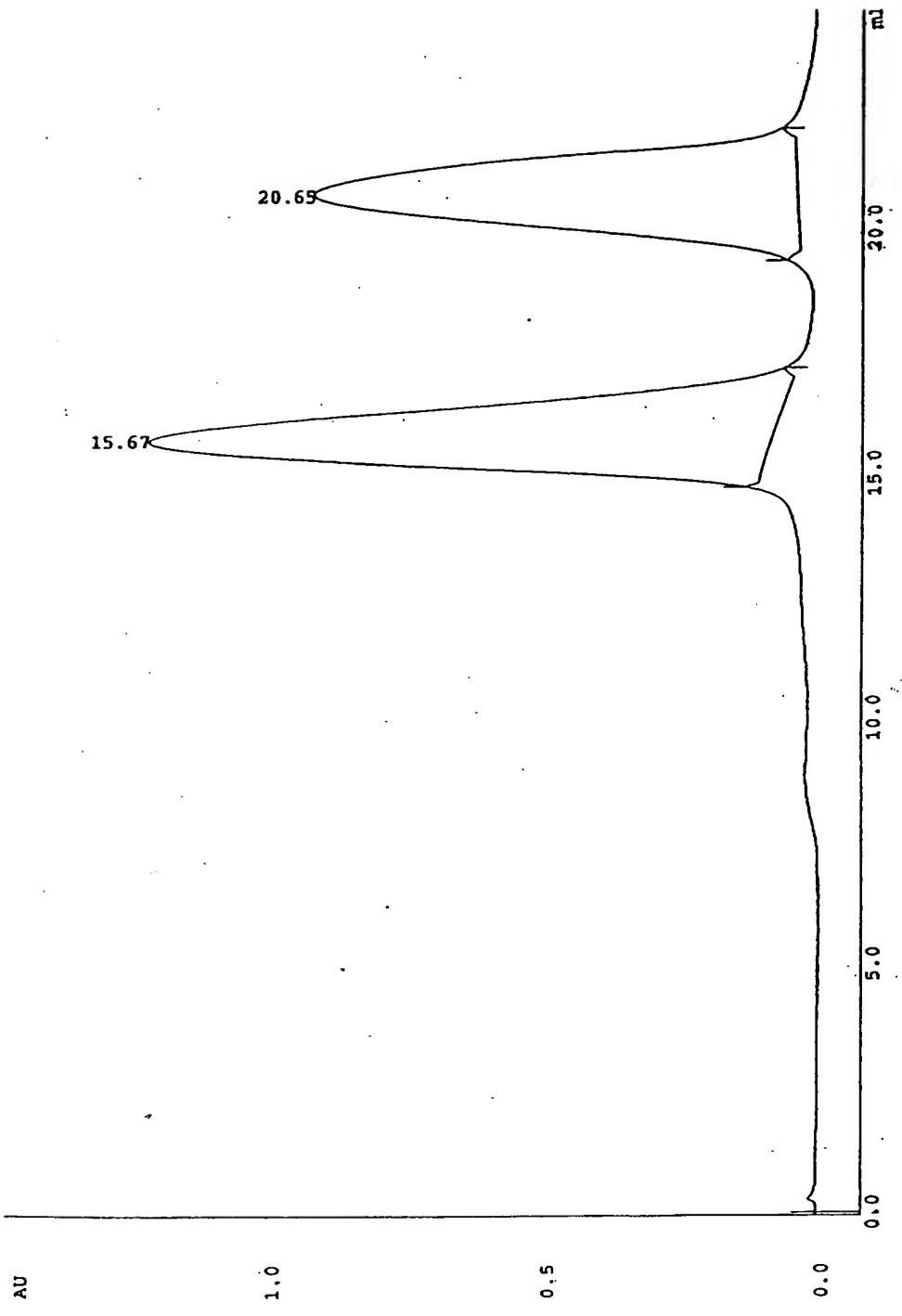


Figure 27

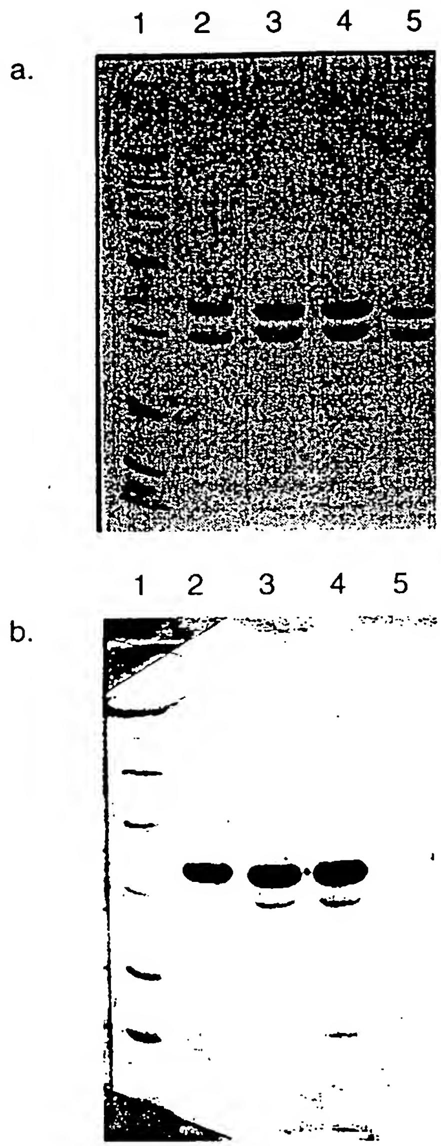


Figure 28

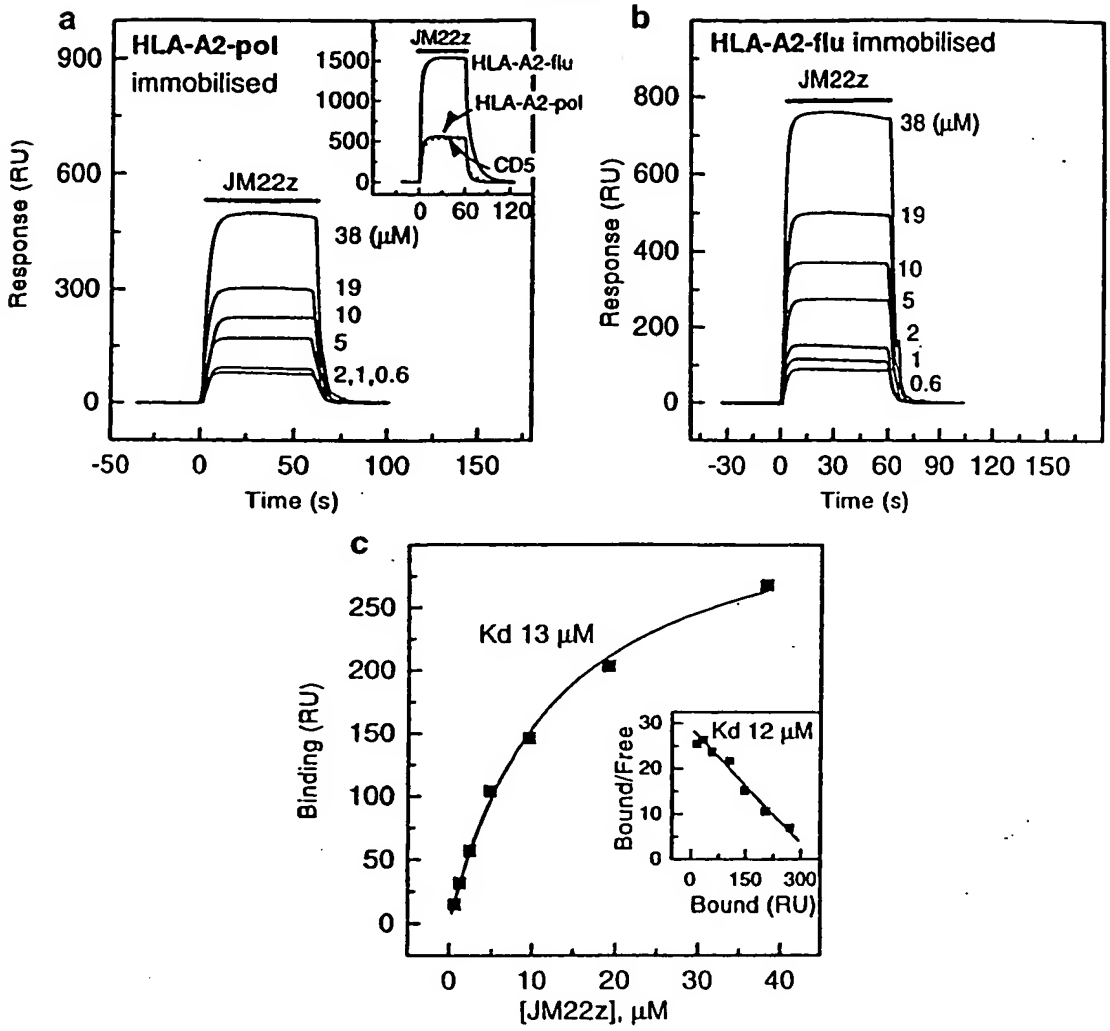
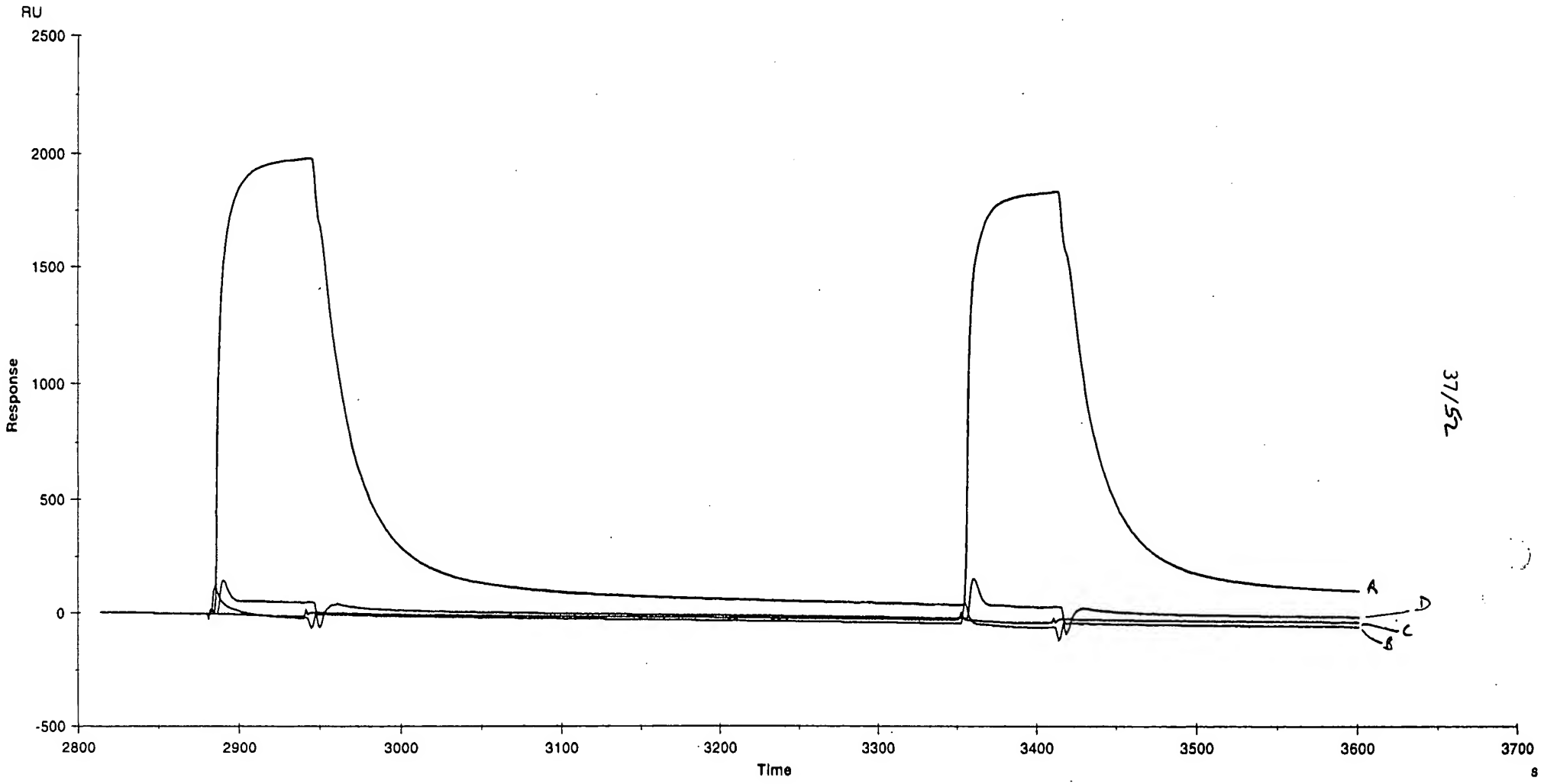

a
HLA-A2-pol
immobilised
JM22z
HLA-A2-flu
HLA-A2-pol
CD5
38 (μM)
19
10
5
2,1,0.6
Response (RU)
Time (s)
b
HLA-A2-flu immobilised
JM22z
38 (μM)
19
10
5
2
1
0.6
Response (RU)
Time (s)
c
Kd 13 μM
Kd 12 μM
Binding (RU)
Bound/Free
Bound (RU)
[JM22z], μM

Figure 29

jon02b Fc=1 - 1

05-May-99

Figure 30



37/52

Figure 31

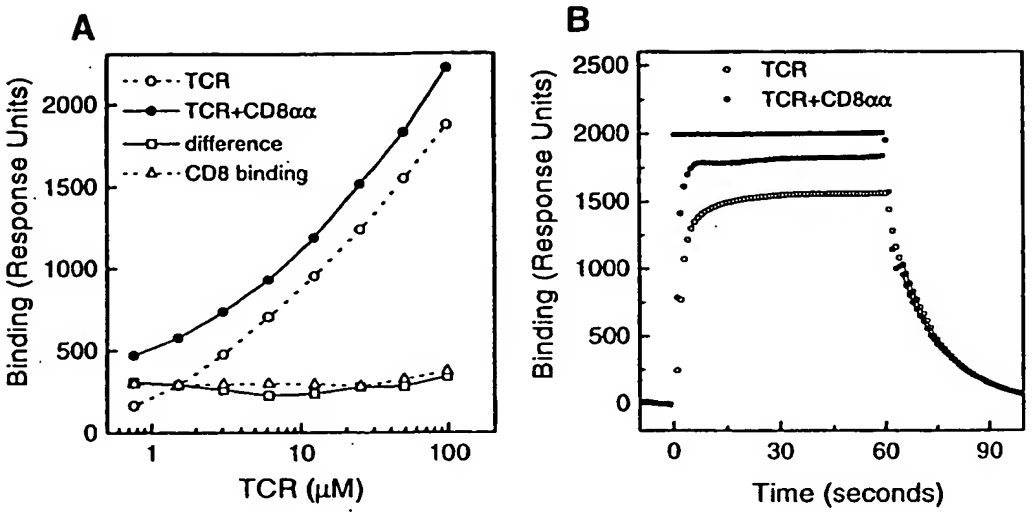

A
TCR
TCR+CD8αα
difference
CD8 binding
Binding (Response Units)
2000
1500
1000
500
0
1
10
100
TCR (μM)
B
TCR
TCR+CD8αα
Binding (Response Units)
2500
2000
1500
1000
500
0
0
30
60
90
Time (seconds)

FIGURE 32

TCR alfa>

M Q L L E Q S P Q F L S I Q E G E N L T

ATGCAaCTaCTaGAaCAaAGtCCTCAGTTTCTAAGCATCCAAGAGGGAGAAAATCTCACT

V Y C N S S S V F S S L Q W Y R Q E P G

GTGTACTGCAACTCCTCAAGTGTTTTTTCCAGCTTACAATGGTACAGACAGGAGCCTGGG

E G P V L L V T V V T G G E V K K L K R

GAAGGTCCTGTCCTCCTGGTGACAGTAGTTACGGGTGGAGAAGTGAAGAAGCTGAAGAGA

L T F Q F G D A R K D S S L H I T A A Q

CTAACCTTTCAGTTTGGTGATGCAAGAAAGGACAGTTCTCTCCACATCACTGCGGCCCAG

P G D T G L Y L C A G A G S Q G N L I F

CCTGGTGATACAGGCCTCTACCTCTGTGCAGGAGCGGGAAGCCAAGGAAATCTCATCTTT

G K G T K L S V K P N I Q N P D P A V Y

GGAAAAGGCACTAAACTCTCTGTTAAACCAAATATCCAGAACCCTGACCCTGCCGTGTAC

Q L R D S K S S D K S V C L F T D F D S

CAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGCCTATTCACCGATTTTGATTCT

Q T N V S Q S K D S D V Y I T D K T V L

CAAACAAATGTGTCACAAAGTAAGGATTCTGATGTGTATATCACAGACAAAACTGTGCTA

D M R S M D F K S N S A V A W S N K S D

GACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTGGCCTGGAGCAACAAATCTGAC

F A C A N A F N N S I I P E D T F F P S

TTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTCCCCAGC

<TCR alfa linker c-jun>

P E S S P G G R I A R L E E K V K T L K

CCAGAAAGTTCCcccgggGGTAGAATCGCCCGGCTGGAGGAAAAAGTGAAAACCTTGAAA

A Q N S E L A S T A N M L R E Q V A Q L

GCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCACAGCTT

K Q K V M N Y *

AAACAGAAAGTCATGAACTACTAG

FIGURE 33

TCR beta>

M V D G G I T Q S P K Y L F R K E G Q N

ATGGTGGATGGTGGAATCACTCAGTCCCCAAAGTACCTGTTCAGAAAGGAAGGACAGAAT

V T L S C E Q N L N H D A M Y W Y R Q D

GTGACCCTGAGTTGTGAACAGAATTTGAACCACGATGCCATGTACTGGTACCGACAGGAC

P G Q G L R L I Y Y S Q I V N D F Q K G

CCAGGGCAAGGGCTGAGATTGATCTACTACTCACAGATAGTAAATGACTTTCAGAAAGGA

D I A E G Y S V S R E K K E S F P L T V

GATATAGCTGAAGGGTACAGCGTCTCTCGGGAGAAGAAGGAATCCTTTCCTCTCACTGTG

T S A Q K N P T A F Y L C A S S S R S S

ACATCGGCCCAAAAGAACCCGACAGCTTTCTATCTCTGTGCCAGTAGTTCGAGGAGCTCC

Y E Q Y F G P G T R L T V T E D L K N V

TACGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAAAACGTT

F P P E V A V F E P S E A E I S H T Q K

TTCCCACCCGAGGTCGCTGTGTTTGAACCATCAGAAGCAGAGATCTCCCACACCCAAAAG

A T L V C L A T G F Y P D H V E L S W W

GCCACACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGCTGGTGG

V N G K E V H S G V S T D P Q P L K E Q

GTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCTCAAGGAGCAG

P A L N D S R Y S L S S R L R V S A T F

CCCGCCCTCAATGACTCCAGATACTCCCTGAGCAGCCGCCTGAGGGTCTCGGCCACCTTC

W Q N P R N H F R C Q V Q F Y G L S E N

TGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAGAAT

D E W T Q D R A K P V T Q I V S A E A W
GACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAGGCCTGG

<TCR beta <u>linker</u> c-fos>

G R A D P G G L T D T L Q A E T D Q L E
GGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA

D K K S A L Q T E I A N L L K E K E K L
GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAACTA

E F I L A A Y *
GAGTTCATCCTGGCAGCTTACTAG

FIGURE 34

TCR beta>

M V D G G I T Q S P K Y L F R K E G Q N
ATGGTGGATGGTGGAATCACTCAGTCCCCAAAGTACCTGTTCAGAAAGGAAGGACAGAAT

V T L S C E Q N L N H D A M Y W Y R Q D
GTGACCCTGAGTTGTGAACAGAATTTGAACCACGATGCCATGTACTGGTACCGACAGGAC

P G Q G L R L I Y Y S Q I V N D F Q K G
CCAGGGCAAGGGCTGAGATTGATCTACTACTCACAGATAGTAAATGACTTTCAGAAAGGA

D I A E G Y S V S R E K K E S F P L T V
GATATAGCTGAAGGGTACAGCGTCTCTCGGGAGAAGAAGGAATCCTTTCCTCTCACTGTG

T S A Q K N P T A F Y L C A S S S R S S
ACATCGGCCCAAAAGAACCCGACAGCTTTCTATCTCTGTGCCAGTAGTTCGAGGAGCTCC

Y E Q Y F G P G T R L T V T E D L K N V
TACGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAAAACGTT

F P P E V A V F E P S E A E I S H T Q K
TTCCCACCCGAGGTCGCTGTGTTTGAACCATCAGAAGCAGAGATCTCCCACACCCAAAAG

A T L V C L A T G F Y P D H V E L S W W
GCCACACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGCTGGTGG

V N G K E V H S G V S T D P Q P L K E Q
GTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCTCAAGGAGCAG

P A L N D S R Y S L S S R L R V S A T F
CCCGCCCTCAATGACTCCAGATACTCCCTGAGCAGCCGCCTGAGGGTCTCGGCCACCTTC

W Q N P R N H F R C Q V Q F Y G L S E N
TGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAGAAT

D E W T Q D R A K P V T Q I V S A E A W

GACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAGGCCTGG

<TCR beta linker c-fos>

G R A D P G G L T D T L Q A E T D Q L E

GGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA

D K K S A L Q T E I A N L L K E K E K L

GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAACTA

linker Biotinylation tag>

E F I L A A Y G S G G G L N D I F E A Q

GAGTTCATCCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTTGAAGCTCAG

K I E W H *

AAAATCGAATGGCATTAA

FIGURE 35

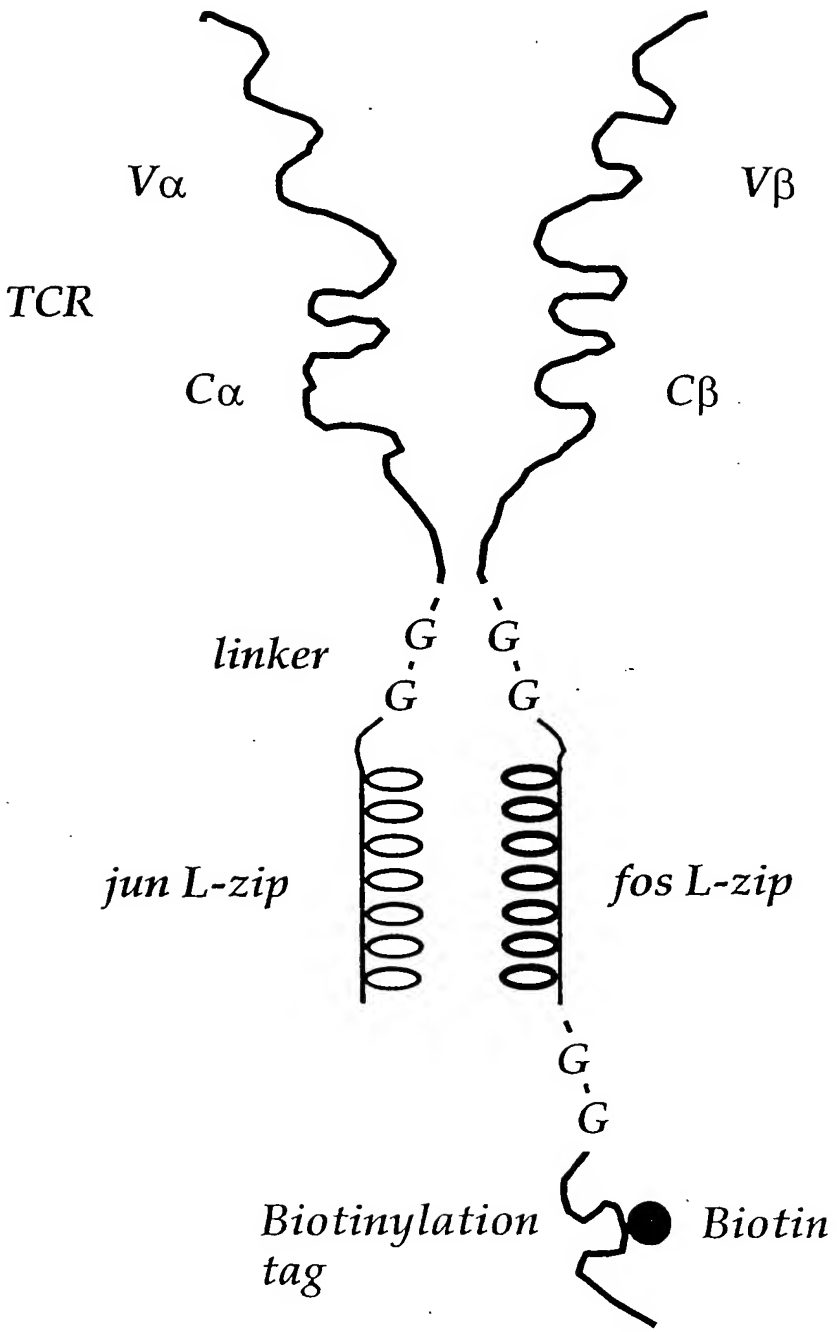
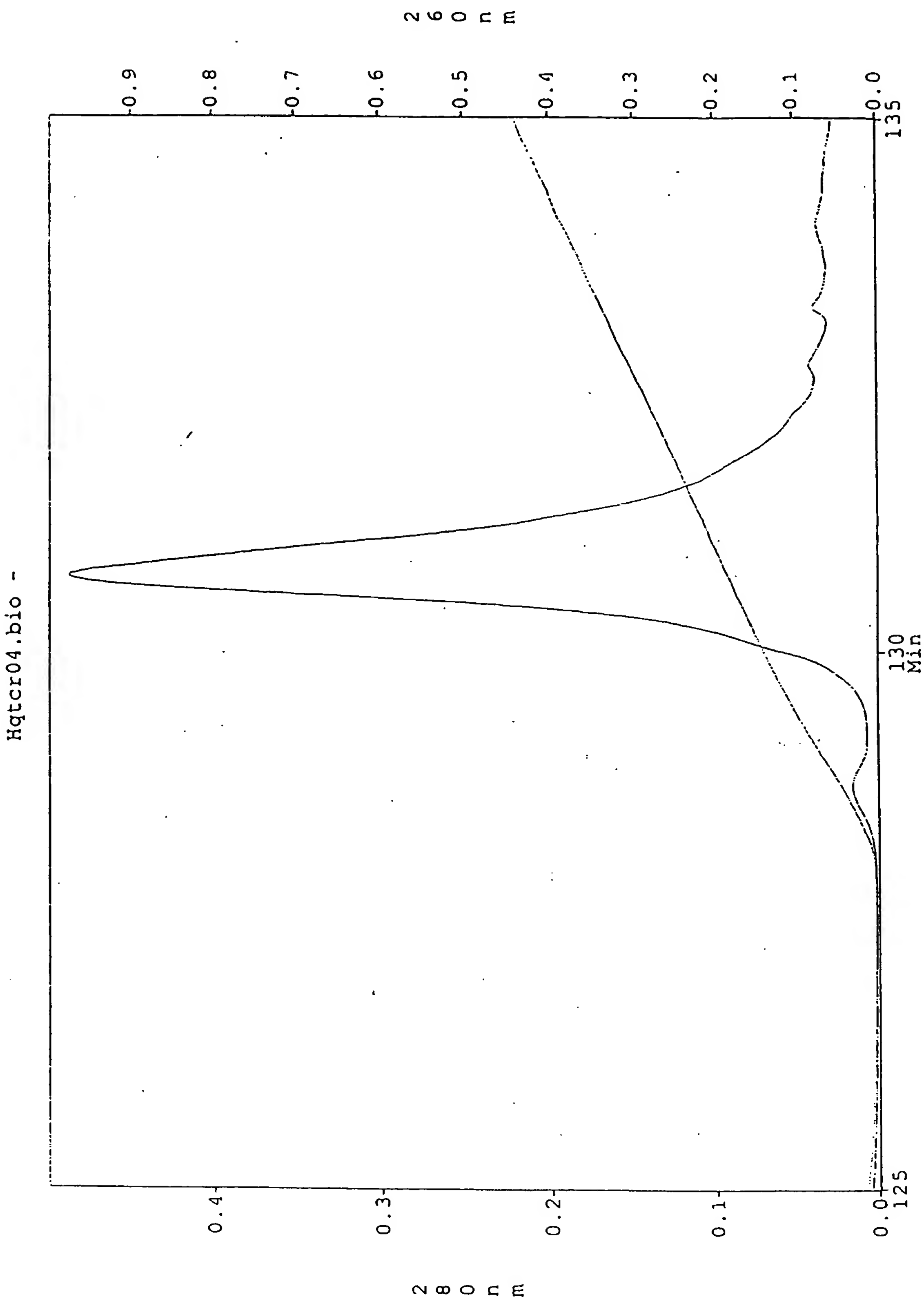

Vα
Vβ
TCR
Cα
Cβ
linker
G
G
G
G
G
G
jun L-zip
fos L-zip
Biotinylation tag
Biotin

FIGURE 36


260nm
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Hqtcr04.bio -
125
130
Min
135
0.4
0.3
0.2
0.1
0.0
280nm

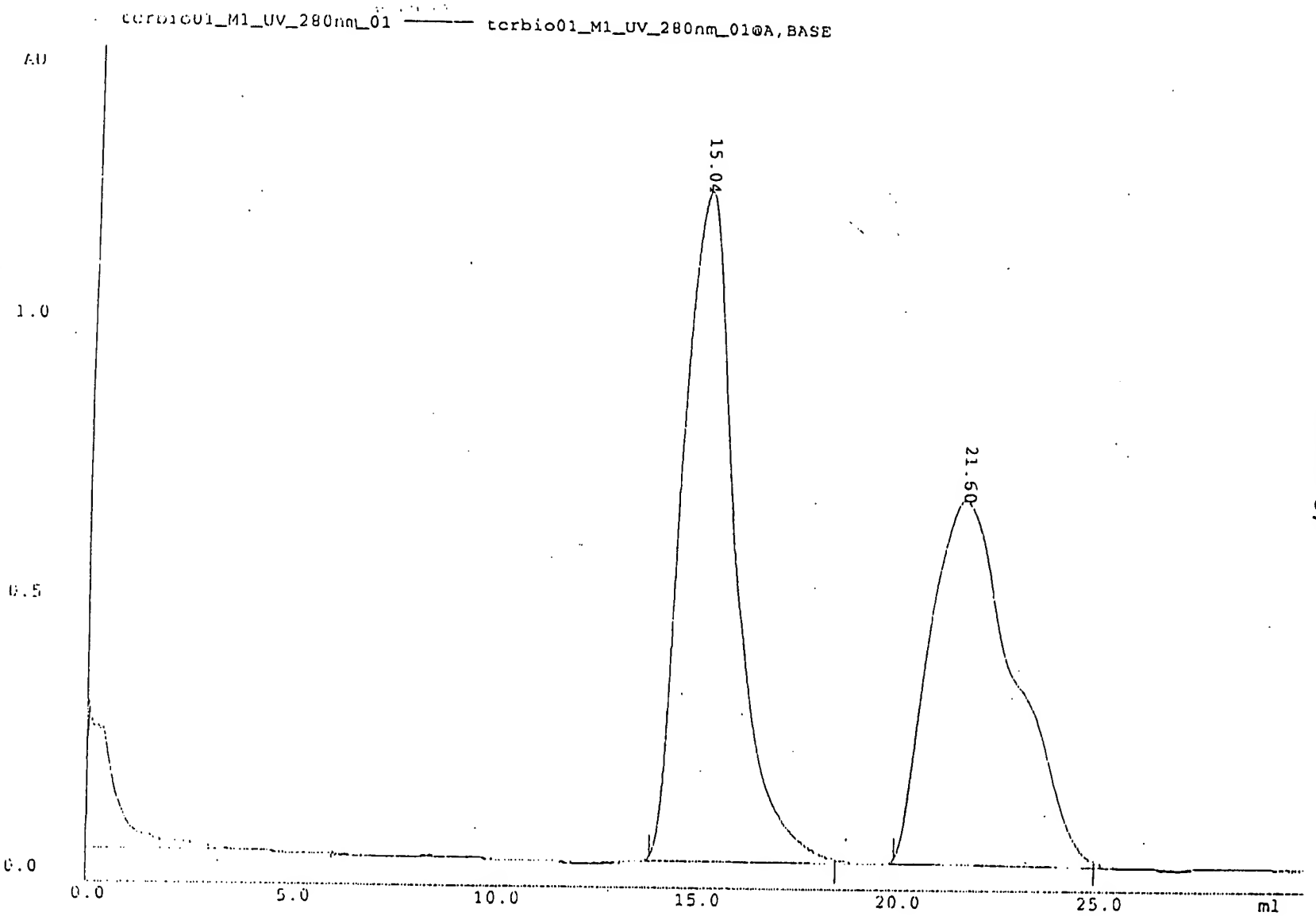


FIGURE 37

4652

FIGURE 38

TCR alfa>
M Q K E V E Q N S G P L S V P E G A I A
atgCAGAAGGAAGTGGAGCAGAACTCTGGACCCCTCAGTGTTCCAGAGGGAGCCATTGCC

S L N C T Y S D R G S Q S F F W Y R Q Y
TCTCTCAACTGCACTTACAGTGACCGAGGTTCCCAGTCCTTCTTCTGGTACAGACAATAT

S G K S P E L I M S I Y S N G D K E D G
TCTGGGAAAAGCCCTGAGTTGATAATGTCCATATACTCCAATGGTGACAAAGAAGATGGA

R F T A Q L N K A S Q Y V S L L I R D S
AGGTTTACAGCACAGCTCAATAAAGCCAGCCAGTATGTTTCTCTGCTCATCAGAGACTCC

Q P S D S A T Y L C A V T T D S W G K L
CAGCCCAGTGATTCAGCCACCTACCTCTGTGCCGTTACAACTGACAGCTGGGGGAAATTG

Q F G A G T Q V V V T P D I Q N P D P A
CAGTTTGGAGCAGGGACCCAGGTTGTGGTCACCCCAGATATCCAGAACCCTGACCCTGCC

V Y Q L R D S K S S D K S V C L F T D F
GTGTACCAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGCCTATTCACCGATTTT

D S Q T N V S Q S K D S D V Y I T D K T
GATTCTCAAACAAATGTGTCACAAAGTAAGGATTCTGATGTGTATATCACAGACAAAACT

V L D M R S M D F K S N S A V A W S N K
GTGCTAGACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTGGCCTGGAGCAACAAA

S D F A C A N A F N N S I I P E D T F F
TCTGACTTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTC

<TCR alfa linker c-jun>
P S P E S S P G G R I A R L E E K V K T
CCCAGCCCAGAAAGTTCCcccgggGGTAGAATCGCCCGGCTGGAGGAAAAAGTGAAAACC

L K A Q N S E L A S T A N M L R E Q V A
TTGAAAGCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCA

Q L K Q K V M N Y *
CAGCTTAAACAGAAAGTCATGAACTACTAG

FIGURE 39

TCR beta>
M N A G V T Q T P K F Q V L K T G Q S M
atgAACGCTGGTGTCACTCAGACCCCAAAATTCCAGGTCCTGAAGACAGGACAGAGCATG

T L Q C A Q D M N H E Y M S W Y R Q D P
ACACTGCAGTGTGCCCAGGATATGAACCATGAATACATGTCCTGGTATCGACAAGACCCA

G M G L R L I H Y S V G A G I T D Q G E
GGCATGGGGCTGAGGCTGATTCATTACTCAGTTGGTGCTGGTATCACTGACCAAGGAGAA

V P N G Y N V S R S T T E D F P L R L L
GTCCCCAATGGCTACAATGTCTCCAGATCAACCACAGAGGATTTCCCGCTCAGGCTGCTG

S A A P S Q T S V Y F C A S R P G L A G
TCGGCTGCTCCCTCCCAGACATCTGTGTACTTCTGTGCCAGCAGGCCGGGACTAGCGGGA

G R P E Q Y F G P G T R L T V T E D L K
GGGCGACCAGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAA

N V F P P E V A V F E P S E A E I S H T
AACGTGTTCCCACCCGAGGTCGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCCACACC

Q K A T L V C L A T G F Y P D H V E L S
CAAAAGGCCACACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGC

W W V N G K E V H S G V S T D P Q P L K
TGGTGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCTCAAG

E Q P A L N D S R Y A L S S R L R V S A
GAGCAGCCCGCCCTCAATGACTCCAGATACgctCTGAGCAGCCGCCTGAGGGTCTCGGCC

T F W Q N P R N H F R C Q V Q F Y G L S
ACCTTCTGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCG

E N D E W T Q D R A K P V T Q I V S A E
GAGAATGACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAG

<TCR beta linker c-fos>
A W G R A D P G G L T D T L Q A E T D Q
GCCTGGGGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAA

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 L  E  D  K  K  S  A  L  Q  T  E  I  A  N  L  L  K  E  K  E
CTTGAAGACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAA

                                  linker Biotinylation tag>
 K  L  E  F  I  L  A  A  Y  G  S  G  G  G  G  L  N  D  I  F  E
AAACTAGAGTTCATCCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTTGAA

 A  Q  K  I  E  W  H  *
GCTCAGAAAATCGAATGGCATTAAGCTT
```

FIGURE 40

TCR alfa>

M Q Q K N D D Q Q V K Q N S P S L S V Q
atgCAACAGAAGAATGATGACCAGCAAGTTAAGCAAAATTCACCATCCCTGAGCGTCCAG

E G R I S I L N C D Y T N S M F D Y F L
GAAGGAAGAATTTCTATTCTGAACTGTGACTATACTAACAGCATGTTTGATTATTTCCTA

W Y K K Y P A E G P T F L I S I S S I K
TGGTACAAAAAATACCCTGCTGAAGGTCCTACATTCCTGATATCTATAAGTTCCATTAAG

D K N E D G R F T V F L N K S A K H L S
GATAAAAATGAAGATGGAAGATTCACTGTCTTCTTAAACAAAAGTGCCAAGCACCTCTCT

L H I V P S Q P G D S A V Y F C A A M E
CTGCACATTGTGCCCTCCCAGCCTGGAGACTCTGCAGTGTACTTCTGTGCAGCAATGGAG

G A Q K L V F G Q G T R L T I N P N I Q
GGAGCCCAGAAGCTGGTATTTGGCCAAGGAACCAGGCTGACTATCAACCCAAATATCCAG

N P D P A V Y Q L R D S K S S D K S V C
AACCCTGACCCTGCCGTGTACCAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGC

L F T D F D S Q T N V S Q S K D S D V Y
CTATTCACCGATTTTGATTCTCAAACAAATGTGTCACAAAGTAAGGATTCTGATGTGTAT

I T D K T V L D M R S M D F K S N S A V
ATCACAGACAAAACTGTGCTAGACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTG

A W S N K S D F A C A N A F N N S I I P
GCCTGGAGCAACAAATCTGACTTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCA

<TCR alfa linker c-jun>

E D T F F P S P E S S P G G R I A R L E
GAAGACACCTTCTTCCCCAGCCCAGAAAGTTCCcccgggGGTAGAATCGCCCGGCTGGAG

E K V K T L K A Q N S E L A S T A N M L
GAAAAAGTGAAAACCTTGAAAGCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTC

R E Q V A Q L K Q K V M N Y *
AGGGAACAGGTGGCACAGCTTAAACAGAAAGTCATGAACTACTAG

FIGURE 4J

TCR beta>
M N A G V T Q T P K F Q V L K T G Q S M
atgAACGCTGGTGTCACTCAGACCCCAAAATTCCAGGTCCTGAAGACAGGACAGAGCATG

T L Q C A Q D M N H E Y M S W Y R Q D P
ACACTGCAGTGTGCCCAGGATATGAACCATGAATACATGTCCTGGTATCGACAAGACCCA

G M G L R L I H Y S V G A G I T D Q G E
GGCATGGGGCTGAGGCTGATTCATTACTCAGTTGGTGCTGGTATCACTGACCAAGGAGAA

V P N G Y N V S R S T T E D F P L R L L
GTCCCCAATGGCTACAATGTCTCCAGATCAACCACAGAGGATTTCCCGCTCAGGCTGCTG

S A A P S Q T S V Y F C A S S Y P G G G
TCGGCTGCTCCCTCCCAGACATCTGTGTACTTCTGTGCCAGCAGTTACCaGGaGGGGGGG

F Y E Q Y F G P G T R L T V T E D L K N
TTTTACGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAAAAC

V F P P E V A V F E P S E A E I S H T Q
GTGTTCCCACCCGAGGTCGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCCACACCCAA

K A T L V C L A T G F Y P D H V E L S W
AAGGCCACACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGCTGG

W V N G K E V H S G V S T D P Q P L K E
TGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCTCAAGGAG

Q P A L N D S R Y A L S S R L R V S A T
CAGCCCGCCCTCAATGACTCCAGATACgctCTGAGCAGCCGCCTGAGGGTCTCGGCCACC

F W Q D P R N H F R C Q V Q F Y G L S E
TTCTGGCAGgACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAG

N D E W T Q D R A K P V T Q I V S A E A
AATGACGAGTGGACCCAGGATAGGGCCAAACCCGTCACCCAGATCGTCAGCGCCGAGGCC

<TCR beta linker c-fos>
W G R A D P G G L T D T L Q A E T D Q L
TGGGGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTT

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 E  D  K  K  S  A  L  Q  T  E  I  A  N  L  L  K  E  K  E  K
GAAGACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAA

                         linker Biotinylation tag>
 L  E  F  I  L  A  A  Y  G  S  G  G  G  L  N  D  I  F  E  A
CTAGAGTTCATCCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTTGAAGCT

 Q  K  I  E  W  H  *
CAGAAAATCGAATGGCATTAAGCTT
```